

COMPREHENSIVE MEDICAL RESEARCH COURSE



FOR NATIONAL HEALTH RELATED PROFESSIONALS



COMPREHENSIVE MEDICAL RESEARCH COURSE

A comprehensive crash course for the medical students who plan to pursue their career abroad or within country as well with complete coverage of the basics of medical research and biostatistics

Duration: 2 Months
Total hours: 40 hours including the assignments
Mode: Online
Classes: 2 to 3 per week of 2 hours each

Target Audience: Medical professionals, researchers, and students interested in medical research pursuing the career in Pakistan as well as abroad



Fee Structure:

Group of 3: 50,000 Each
Group of 5: 40,000 Each
Group of 10: 30,000 Each
Group of 20: 20,000 Each

Fee can be paid in installments as well

Payment Method

Through Bank Account

Bank Name : Meezan Bank
Title of Account: Adnan Anwar
Account no:
PK49 MEZN 0001 8401 0368 9725

Through Easypaisa

Title: Adnan Anwar
Easypaisa Account:03212625053
Title of Easypaisa:Adnan Anwar

Certificates: 10 certificates total with Authentic signing Authorities

Prof. Dr. Adnan Anwar

EDUCATION

- MBBS,
- M.Phil,
- PhD,Scholar
- PCEPT,
- CRCP
- CHPE

Designation:

Professor of Physiology

Director, The Research Professionals

Certified Medical Research Trainer



SCAN TO CONTACT

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RESEARCH WORK



WORKSHOPS

Organized and conducted more than 200 workshops on

- Research Methodology
- Sample size and Study design
- Topic selection
- Synopsis writing
- Objections clearance for Research
- SPSS and Results making
- Article writing
- Abstract writing
- Effective Research presentation
- Thesis writing



ADDITIONAL RESEARCH SKILLS

More than 50 thesis corrections
More than 500 result analysis of medical research
Article writing expertise
Research Consultant in pharmaceutical companies (Bosch, Ferozsons, Hilton, Pharmevo, Hi Q, Helix, Dynatis)
Expert writing skills

PUBLICATIONS

95 publications in local and international journals

List of Topics

(2 hours each)

- Scope of research
- Topic selection
- Objective and hypothesis formulation
- Data types and variables
- Basic biostatistics in medical research
- Selection of statistical test for research
- Usage of SPSS software for analysis
- Study designs in medical research
- Sampling technique and sample size calculation
- Inclusion and exclusion criteria for research
- Questionnaire designing in medical research
- Literature searching in medical research
- How to write introduction in research
- How to write methodology portion in research
- Result interpretation in medical research
- Discussion writing in medical research
- Abstract writing
- Bias and its precautions
- Referencing in medical research
- Artificial intelligence in medical Research



1. SCOPE OF RESEARCH IN MEDICINE

Objectives

1. Define the boundaries and focus areas of a research topic.
2. Identify the relevance and significance of the research in the context of existing literature.
3. Determine the key questions that the research aims to address.
4. Assess the resources and time required for the research project.
5. Evaluate the potential outcomes and impact of the research.

Outcomes

Understanding the scope of research helps in narrowing down the focus to a manageable and significant area. It establishes the boundaries of the study, ensuring that the research is relevant and contributes meaningfully to the existing body of knowledge. A clearly defined scope also helps in identifying the key research questions and aligning them with available resources and time constraints. This comprehensive overview supports the identification of potential outcomes and their relevance to the broader field.

2. TOPIC SELECTION

Objectives

1. Identify a research problem that aligns with the field of interest.
2. Ensure the topic is original, relevant, and contributes to scientific knowledge.
3. Assess the feasibility of conducting research on the chosen topic.
4. Review the availability of resources and data required for the study.
5. Confirm the topic's potential for generating significant findings.

Outcomes

Effective topic selection is crucial to conducting meaningful research. The chosen topic should be both feasible and relevant, contributing new insights to the field. Through careful consideration of resources, data availability, and existing literature, researchers can select topics that are both original and practical. A well-chosen research topic provides a clear focus, facilitating systematic investigation and ensuring the potential for impactful results.



3. OBJECTIVE AND HYPOTHESIS FORMULATION

Objectives

1. Formulate clear, concise, and measurable research objectives.
2. Develop a testable hypothesis that addresses the research problem.
3. Ensure that the objectives are aligned with the scope and goals of the study.
4. Establish the significance of the hypothesis in addressing knowledge gaps.
5. Determine the variables involved and their relationships to the research question.

Outcomes

The formulation of research objectives and hypotheses is fundamental to guiding the study. Clear objectives provide direction, ensuring that the research stays focused and measurable. A well-constructed hypothesis serves as a testable statement that can be evaluated through the research, and it should address significant gaps in knowledge. Together, they create a framework for the study that informs methodology and data analysis.

4. DATA TYPES AND VARIABLES

Objectives

1. Classify the types of data (qualitative, quantitative, etc.) relevant to the research.
2. Identify the dependent and independent variables.
3. Understand the difference between discrete and continuous variables.
4. Determine the scale of measurement for each variable (nominal, ordinal, interval, ratio).
5. Establish the operational definitions of variables for clarity in data collection.

Outcomes

Understanding data types and variables is essential for designing research and selecting appropriate analytical methods. Clear identification of variables and their types (qualitative vs. quantitative, dependent vs. independent) helps ensure accurate data collection and analysis. This clarity supports the formulation of hypotheses and enables researchers to make meaningful interpretations of the results. Additionally, knowing how to define and categorize variables lays the groundwork for sound statistical analysis.



5. BASIC BIOSTATISTICS IN MEDICAL RESEARCH

Objectives

1. Understand the role of biostatistics in medical research.
2. Learn basic statistical concepts like mean, median, mode, variance, and standard deviation.
3. Apply statistical methods to describe and summarize data.
4. Learn the difference between descriptive and inferential statistics.
5. Understand the concepts of probability, sampling distributions, and statistical significance.

Outcomes

Basic biostatistics is critical for interpreting medical research data. Researchers must be equipped to apply statistical methods to analyze data, interpret findings, and draw valid conclusions. Descriptive statistics help summarize data effectively, while inferential statistics allow researchers to make predictions and generalizations based on sample data. Understanding probability, significance testing, and variability ensures the research results are scientifically valid and reliable.

6. SELECTION OF STATISTICAL TEST FOR RESEARCH

Objectives

1. Identify the research question and hypothesis to determine the appropriate statistical test.
2. Understand the different types of statistical tests (parametric vs. non-parametric).
3. Learn how to choose between tests like t-tests, chi-square tests, ANOVA, and regression analysis.
4. Evaluate assumptions (e.g., normality, homogeneity of variance) for selecting tests.
5. Consider the sample size and data type in choosing an appropriate test.

Outcomes

Selecting the correct statistical test is essential for valid analysis in medical research. By aligning the research question and hypothesis with the appropriate test, researchers can ensure that their conclusions are scientifically accurate. The choice between parametric and non-parametric tests, as well as the consideration of assumptions and data type, ensures that the results are robust and meaningful. Proper test selection leads to accurate, interpretable outcomes that support research conclusions.



7. USAGE OF SPSS SOFTWARE FOR ANALYSIS

Objectives

1. Learn how to input and manage data in SPSS.
2. Understand the basic functions of SPSS, including descriptive statistics and frequency distributions.
3. Perform statistical analyses such as t-tests, chi-square tests, and regression in SPSS.
4. Interpret output results generated by SPSS.
5. Learn how to visualize data through charts and graphs in SPSS.

Outcomes

SPSS (Statistical Package for the Social Sciences) is a powerful tool for analyzing medical research data. Researchers using SPSS can input, manage, and analyze large datasets efficiently. The software's wide range of statistical functions, from descriptive to advanced inferential statistics, allows researchers to draw meaningful conclusions. SPSS's ability to generate detailed output and visualizations aids in interpreting complex data, ensuring that the research findings are accessible and understandable.

8. STUDY DESIGNS IN MEDICAL RESEARCH

Objectives

1. Understand the various types of study designs, including observational and experimental.
2. Learn the differences between cross-sectional, cohort, case-control, and randomized controlled trials (RCTs).
3. Identify the strengths and limitations of each study design.
4. Determine the appropriate study design for a specific research question.
5. Understand the role of biases and confounding factors in study design.

Outcomes

The choice of study design in medical research is pivotal to obtaining valid, reliable results. Different designs serve different research purposes, whether exploring causal relationships (RCTs), understanding associations (cohort, case-control), or describing phenomena (cross-sectional). A well-chosen study design enhances the accuracy and credibility of findings, while also helping researchers mitigate biases and confounding factors that could distort the results.



9. SAMPLING TECHNIQUE AND SAMPLE SIZE CALCULATION

Objectives

1. Understand the importance of sample size in ensuring statistical power.
2. Learn different sampling techniques, including random, stratified, and convenience sampling.
3. Calculate the optimal sample size using power analysis.
4. Evaluate the trade-offs between sample size, resources, and statistical significance.
5. Understand the concepts of sampling error and margin of error.

Outcomes

Proper sampling and sample size calculation are essential to obtaining valid and generalizable results. Choosing an appropriate sampling technique ensures that the sample is representative of the population, minimizing bias. Adequate sample size, determined through power analysis, increases the likelihood of detecting true effects and improves the reliability of results. Researchers must balance sample size with available resources and statistical requirements to ensure the study is feasible and statistically robust.

10. INCLUSION AND EXCLUSION CRITERIA FOR RESEARCH

Objectives

1. Define inclusion and exclusion criteria to determine who can participate in the study.
2. Ensure criteria align with the research objectives and target population.
3. Prevent bias by clearly defining the criteria.
4. Evaluate ethical considerations in setting criteria.
5. Assess the impact of inclusion/exclusion criteria on generalizability and validity of the findings

Outcomes

Inclusion and exclusion criteria play a crucial role in the validity of medical research. By carefully selecting participants who meet specific criteria, researchers can ensure that the study population is representative of the target group, reducing potential biases. These criteria also safeguard participant well-being and uphold ethical standards. Clear and thoughtful criteria improve the accuracy and generalizability of the study results, making the research more applicable to broader populations.



11. QUESTIONNAIRE DESIGNING IN MEDICAL RESEARCH

Objectives

1. Develop clear, concise, and relevant questions aligned with research objectives.
2. Use appropriate scales (Likert, dichotomous, etc.) for measuring responses.
3. Ensure questions are understandable and culturally appropriate.
4. Address potential biases in question framing and response options.
5. Pilot test the questionnaire to refine the instrument

Outcomes

Effective questionnaire design is essential for collecting reliable and valid data in medical research. Well-constructed questions ensure that respondents provide accurate, meaningful information aligned with the study's objectives. Proper scaling and unbiased framing enhance the reliability of responses, while cultural sensitivity ensures that the instrument is suitable for diverse populations. A pilot test allows for refining the questionnaire before full-scale data collection, ensuring the instrument's effectiveness.

12. LITERATURE SEARCHING IN MEDICAL RESEARCH

Objectives

1. Identify appropriate databases for literature searches (PubMed, Cochrane, etc.).
2. Use effective search strategies, including keywords, Boolean operators, and filters.
3. Assess the quality and relevance of the studies retrieved.
4. Summarize key findings from relevant literature.
5. Stay updated with the latest research to inform the study design and methodology.

Outcomes

A thorough literature search is essential for understanding the current state of knowledge in a research area. By using appropriate databases and search techniques, researchers can identify high-quality studies that inform the design and direction of their own research. Literature reviews also help in identifying gaps in knowledge, ensuring that new research contributes meaningfully to the field. Staying updated with recent publications ensures that research remains relevant and scientifically rigorous.



13. HOW TO WRITE INTRODUCTION IN RESEARCH

Objectives

1. Provide background information and context for the research problem.
2. Review the relevant literature to identify gaps in knowledge.
3. Clearly state the research question and objectives.
4. Justify the significance of the research.
5. Establish the scope and limitations of the study.

Outcomes

The introduction sets the stage for the entire research project. By providing background information and reviewing existing literature, it helps establish the context for the research problem. Clearly stating the research objectives and justifying their significance ensures that readers understand the importance of the study. The introduction should also define the scope of the study and acknowledge any limitations, offering a roadmap for the rest of the research paper.

14. HOW TO WRITE METHODOLOGY PORTION IN RESEARCH

Objectives

1. Clearly describe the research design and approach.
2. Provide a detailed explanation of data collection methods.
3. Justify the selection of study population and sampling techniques.
4. Outline the statistical methods used for data analysis.
5. Ensure transparency and reproducibility of the methodology

Outcomes

The methodology section is crucial for ensuring that the study can be replicated and the results validated. A well-written methodology provides a clear, systematic description of the research design, data collection methods, sampling techniques, and statistical analysis procedures. This transparency allows other researchers to evaluate the validity of the study and ensures that the methods are appropriate for answering the research question.



15. RESULT INTERPRETATION IN MEDICAL RESEARCH

Objectives

1. Present findings in a clear, concise manner using appropriate tables and figures.
2. Interpret statistical significance and practical relevance of results.
3. Identify potential confounding variables and biases.
4. Compare results with previous studies to assess consistency.
5. Draw conclusions that align with the research objectives.

Outcomes

Interpreting results accurately is key to understanding the implications of medical research. Researchers must present their findings clearly, using tables and figures to facilitate understanding. Statistical significance should be considered alongside practical relevance to determine the true impact of the findings. Results should be contextualized by comparing them with existing literature and considering possible biases, allowing for sound conclusions that address the research question.

16. DISCUSSION WRITING IN MEDICAL RESEARCH

Objectives

1. Summarize key findings and relate them to the research question.
2. Discuss the implications of the findings for clinical practice or policy.
3. Address limitations of the study and suggest areas for future research.
4. Compare results with similar studies and explain discrepancies.
5. Provide a balanced interpretation, acknowledging both strengths and weaknesses.

Outcomes

The discussion section interprets the results in a broader context, highlighting their significance and relevance to the field. By comparing findings with previous research, researchers can identify trends, confirm or dispute existing theories, and suggest future directions for research. Addressing the study's limitations shows transparency and helps define areas for improvement, ensuring that the conclusions are well-supported and credible.



17. ABSTRACT WRITING

Objectives

1. Summarize the key elements of the study (objective, methodology, results, conclusion).
2. Ensure the abstract is concise, clear, and informative.
3. Highlight the significance and potential impact of the research.
4. Use a structured format (background, objectives, methods, results, conclusion).
5. Avoid unnecessary jargon and ensure accessibility for a wide audience

Outcomes

A well-written abstract is a succinct summary of the entire research study. It should provide enough information to allow readers to quickly understand the purpose, methods, findings, and significance of the research. A clear and concise abstract encourages readers to engage with the full paper, making it a crucial element of any research publication.

18. BIAS AND ITS PRECAUTIONS

Objectives

1. Identify common types of bias in medical research (selection, reporting, etc.).
2. Understand the impact of bias on research validity and reliability.
3. Learn strategies to minimize bias during study design and implementation.
4. Recognize potential sources of bias in data analysis and interpretation.
5. Use randomization and blinding techniques to reduce bias.

Outcomes

Bias can undermine the validity of medical research, leading to misleading or inaccurate conclusions. By identifying and addressing different types of bias (e.g., selection, reporting), researchers can improve the quality of their studies. Implementing strategies like randomization and blinding helps minimize bias during both data collection and analysis. Awareness of bias is essential for maintaining the integrity of research findings and ensuring that they are reproducible and reliable.



19. REFERENCING IN MEDICAL RESEARCH

Objectives

1. Understand the importance of accurate referencing in academic research.
2. Learn different citation styles (APA, Vancouver, etc.) used in medical research.
3. Cite sources appropriately within the text and in the reference list.
4. Ensure all referenced material is relevant and reliable.
5. Avoid plagiarism by properly crediting original sources.

Outcomes

Proper referencing is essential in medical research to give credit to original authors and avoid plagiarism. Accurate citation not only helps in maintaining academic integrity but also provides readers with resources to verify and explore the research. Different citation styles, such as APA or Vancouver, must be adhered to depending on the journal or institution's requirements. Comprehensive referencing contributes to the credibility and trustworthiness of the research paper.

20. ARTIFICIAL INTELLIGENCE IN MEDICAL RESEARCH

Objectives

1. Understand the role of AI in medical data analysis and decision-making.
2. Learn about machine learning algorithms and their applications in research.
3. Explore AI tools for diagnostic support and predictive modeling.
4. Evaluate the ethical considerations of using AI in medical research.
5. Assess the potential and limitations of AI in improving patient outcomes.

Outcomes

Artificial Intelligence is transforming medical research by enhancing data analysis and enabling more accurate predictive models. Machine learning algorithms can identify patterns in large datasets that would be difficult for humans to detect, aiding in areas like diagnostics, personalized medicine, and drug discovery. However, the use of AI also raises ethical questions around data privacy, algorithmic bias, and the potential for over-reliance on technology. Researchers must balance the potential of AI with its limitations, ensuring that its use aligns with ethical standards and ultimately improves patient outcomes.

RESEARCH METHODOLOGY SESSION



At The kingdom of Saudi Arabia

By Dr Adnan Anwar

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In karachi, Pakistan

By Dr Adnan Anwar

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In Hyderabad, Pakistan

By Dr Adnan Anwar

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In Lahore, Pakistan

By Dr Adnan Anwar

RESEARCH METHODOLOGY SESSION



In Quetta, Pakistan

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